FIBRE CHEMISTRY
Volume 34, Numbers 1-6, 2002
(A translation of *Khimicheskie Volokna*)

Engl./Russ.

Volume 34, Number 1, January-February, 2002

CHEMISTRY AND TECHNOLOGY OF CHEMICAL FIBRES

Effect of the Molecular Weight of Fibre-Forming Polymers on the Mechanical Properties of Polymer Fibres (Review) – A. V. Volokhina 1 3

The Role of Different Factors in Creation of the Structure of Stabilized Acrylic Fibres – A. T. Kalashnik 10 11

Chitosan—Cellulose Films Fabricated from Mixtures of Polysaccharides in N-methylmorpholine N-oxide – S. Z. Rogovina, L. K. Golova, O. E. Borodina, and G. A. Vikhoreva 18 18

Effect of Ethyl Alcohol Vapors on the Structure of Polycaproamide Fibre – I. V. Fedusenko, G. N. Timofeeva, and N. V. Protsenko 21 21

Use of Fluorine-Containing Compounds for Modification of Polycaproamide – O. G. Kuznetsova, N. A. Storozhakova, N. S. Zubkova, and N. G. Butylkina 25 24

Principles of the Electrojet Drop Method of Applying Oiling Agents on Chemical Fibres – V. S. Nagornyi 31 28

Alkali Cellulose as a Regulator of the Rheological Behavior of Solutions of Dyes – A. V. Baranov, N. S. Dymnikova, and A. V. Il'in 38 34

Hydrodynamics of Shaft Drying of Granulated Poly(Ethylene Terephthalate) – A. V. Akulich and Yu. A. Geller 41 37

MATERIALS SCIENCE

Evaluation of the Hyperelastic Properties of Extended Polymer Jets – A. V. Smirnov and A. V. Genis 46 41

Evaluation of the Nonuniformity of Filaments Based on Data from Pulsed-Acoustic Tests of Complex Chemical Fibres – M. N. Ivanov, R. V. Brezgin, and K. E. Perepelkin 53 46

Protonation of Vion Anion-Exchange Chemisorbents – L. A. Polovikhina, D. G. Sil'chenkov, E. V. Dovbii, Z. Z. Abdulkhakova, M. P. Zverev, and V. P. Grigor'ev 58 50

Preparation of Para-AramideFabrics for Finishing Operations – A. P. Mikhailovskaya, T. Yu. Dyankova, and K. E. Perepelkin 62 53

Optimization of Twisting Technology in Processing of Polypropylene Film Sewing Thread – S. A. Ryzhov and V. A. Rodionov 66 56

Effect of the Contour of Vidlon Polycaproamide Twists on Their Physicomechanical and Textural Properties – N. P. Gankov, D. I. Pishev, and P. M. Petrov 70 60

MATHEMATICAL MODELING OF PROCESSES

Prediction of Structural Parameters of Fabrics Made from Chemical Fibres. Part 3. Results of Theoretical and Experimental Studies of Structural Parameters – B. M. Primachenko and N. A. Kovaleva 74 63

Prediction of Structural Parameters of Fabrics Made of Chemical Fibres. Part 4. Analysis of the Results of Prediction of the Structural Parameters – B. M. Primachenko and N. A. Kovaleva 80 67

Volume 34, Number 2, March-April, 2002

CHEMISTRY AND TECHNOLOGY OF CHEMICAL FIBRES

Polylactide Fibres: Fabrication, Properties, Use, Prospects. A Review – K. E. Perepelkin 85 12

Characteristics of Jet Flow of Poly-(*p*-Phenylene Terephthalamide) Solutions – V. N. Kiya-Oglu and A. T. Serkov 101 25

Mixing and Spinnability of Polymer Blends on the Example of the Polyamide 6.6—Poly(Ethylene Terephthalate) Model System – A. V. Drogun 111 32

Evaluation of Stock Quality in Polycaproamide Technology – I. L. Kazantseva, T. P. Ustinova, S. E. Artemenko, and V. V. Brudnik 115 35

Optimization of Production of Vidlon Shaped Polycaproamide Twists – N. P. Gankov, D. I. Pishev, P. M. Petrov, and S. K. Stoyanov 119 38

MATERIALS SCIENCE

Fabrication and Properties of Fibre Materials Containing Biologically Active Protease—Polyethylenimine Complex – T. N. Yudanova, I. F. Skokova, and S. B. Martynova 125 44

Effect of Structural Parameters and Pressure on the Permeability of Fabrics Made of Monofilaments – Yu. S. Shustov and M. V. Goryachev 129 47

Light-Scattering Fibre Materials - V. G. Merzlikin, V. G. Sutugin, and M. V. Shablygin 134 50

RESEARCH METHODS

Quantum Chemical Calculation of the Character of Structural Organization and H-Bond Energy in the Benzimidazole Fragment of Fibres of the Armos Type – I. A. Abbronin, V. A. Rakitina, V. A. Gribanov, and M. V. Shablygin 140 55

IR Spectroscopic Characteristics of Polyacrylonitrile Copolymer Fibres – T. A. Belousova 146 59

Volume 34 , Number 3, May - June, 2002

CHEMISTRY AND TECHNOLOGY OF CHEMICAL FIBRES

Status and Prospects for Development of Polyacrylonitrile Fibre Production. A Review – B. E. Geller 151 3

On the Mechanism of Transitions of State – A. T. Serkov 162 12

Reaction of Cellulose with Aqueous Solutions of Orthophosphoric Acid – V. V. Vinogradov, L. N. Mizerovskii, and O. P. Akaev 167 15

Polyester Fibre with Low Combustibility – E. M. Aizenshtein, L. A. Anan'eva, O. P. Okuneva, L. V. Ignatovskaya, and O. N. Vereshchak 172 19

Rheological Properties and Structure of Aqueous Solutions of Polysaccharides. Solutions of Sodium Carboxymethylcellulose Fractions of Different Molar Mass – S. M. Prusova, I. V. Ryabinina, and A. N. Prusov 177 23

Basic Characteristics of Aerodynamic Spinning of Fibres from Solutions of Polymers – A. V. Smirnov and A. V. Genis 181 26

MATERIALS SCIENCEMATERIALS SCIENCE

Change in the Properties of Textile Materials Containing Polyester and Cellulose Fibres Caused by Moisture – E. E. Smirnova, K. E. Perepelkin, N. A. Smirnova, and S. A. Brezgina 192 34

Sorption Properties of Polyacrylonitrile Fibres – L. Ya. Konovalova and G. S. Negodyaeva 197 37

The Microporosity of Polyacrylonitrile Fibre – L. A. Zlatoustova, V. N. Smirnova, V. A. Medvedev, and A. T. Serkov 200 39

Fibre Chemisorbents for Treatment of Industrial Sewage – Z. Z. Abdulkhakova, A. A. Zhukor, and E. P. Myasoedov 203 42

METHODS OF INVESTIGATION

Electron Paramagnetic Resonance in Investigation of Polymer Fibres. A Review – E. V. Dovbii 206 45

Kinetics and Mechanism of Separation of Water from Polybenzothiazole Fibres – V. Ya. Efremov, A. T. Kalashnik, V. N. Odnoralova, V. I. Ognev, and V. N. Kiya-Oglu 212 50

Variant of the Relaxation and Retardation Spectra for Amorphous Crystalline Synthetic Fibres – A. G. Makarov and A. M. Stalevich 215 52

Calculated and Experimental Estimation of Absorbed Mechanical Work in Deformation of Synthetic Fibres – A. M. Stalevich, A. G. Makarov, and E. D. Saidov 219 55

MACHINES AND EQUIPMENTMACHINES AND EQUIPMENT

Aspects of Technology and Equipment for Polymerization, Extraction, and Drying of Polycaproamide – E. K. Platonov, M. V. Stupa,, and V. I. Stupa 223 57

New Domestic Equipment for Continuous Production of Viscose Fibre – Yu. A. Kazakovtsev 233 64

Noise Reduction in Units for Pneumatic Weaving of Complex Fibres – O. S. Kochetov 237 68

Volume 34, Number 4, July-August, 2002

Analysis of Price Trends on the World Synthetic Fibre and Thread Market – E. M. Aizenshtein and E. V. Kalitova 241 3

SECOND BYELORUSIAN SCIENTIFIC-PRACTICAL CONFERENCE

Kinetic and Thermodynamic Aspects of Modification of the Composition of Fibre-Forming Acrylonitrile Copolymers – B. E. Geller and L. A. Shcherbina 250 14

Properties of Block Copolymers of Poly(Butylene Terephthalate) and Polyoxytetramethylene Glycol – Yu. M. Mozheiko 254 18

Pilling-Resistant Polyester Fibre – L. P. Sharova, V. V. Zhukov, V. V. Gal'chun, E. M. Verfenich, M. N. Markhotenko, S. P. Skovysh, L. P. Kulish, V. I. Sedakov, and V. G. Baranovskii 260 22

Ultrathin Polypropylene Fibres from Polymer Blend Melts – M. V. Tsebrenko, N. M. Rezanova, and I. A. Tsebrenko 263 25

CHEMISTRY AND TECHNOLOGY OF CHEMICAL FIBRES

Carbon Fibres with Specific Physical and Physicochemical Properties Based on Hydrated Cellulose and Polyacrylonitrile Precursors. A Review – K. E. Perepelkin 271 32

Modification of Polycaproamide in the Drying Stage for Manufacture of Fibres with Improved Performance Properties – N. A. Storozhakova, A. B. Golovanchikov, M. K. Tatarnikov, V. S. Kuz'min, A. I. Rakhimov, and R. G. Fedunov 281 41

Effect of Stock Quality on Finished Fibre Indexes – E. V. Bekisheva, O. A. Kolmakova, V. V. Levshina, N. L. Zubakhina, and T. A. Maslova 287 45

Some Problems in Drawing and Texturing of Vidlon Polycaproamide Fibres – N. P. Gankov and D. I. Pishev 290 48

MATERIALS SCIENCE
Tverlana® Thermostable Polyamidobenzimidazole Fibre – N. N. Machalaba, G. A. Budnitskii, A. V. Volokhina, N. V. Kulasheva, V. N. Kiya-Oglu, T. M. Ogneva, N. V. Pedchenko, I. V. Poleeva, and A. N. Sokira 294 52
Electromagnetic Shields Made from Nonwoven Composite Materials – V. A. Bannyi, I. N. Khodakova, and A. V. Makarevich 297 54
Filtering Properties of Nonwoven Material – A. V. Dedov, A. V. Platonov, S. V. Babushkin, and V. G. Nazarov 301 57
Extraction of Hardness Salts from Water with Chemisorbents – Z. Z. Abdulkhakova, F. V. Gafarov, and V. S. Chrednichenko 304 59

MATHEMATICAL MODELING OF PROCESSES
Control of Viscose Production with a Mathematical Model – D. I. Buyaev, L. S. Gal'braikh, Yu. N. Fikhman, I. P. Baksheev, and A. A. Yakobuk 307 61
Mathematical Description of the Kinetics of the Macromolecular Reaction of Oxirane Groups of Polycaproamide—Polyglycidyl Methacrylate Copolymer with Diamines – K. V. Kardash, T. V. Druzhinina, and G. I. Efremov 311 65

NOTE 317 51

Volume 34, Number 5, September-October, 2002

CHEMISTRY AND TECHNOLOGY OF CHEMICAL FIBRES
Synthesis of Poly-(*p*-Phenylenebenzobisthiazole) Used for Manufacture of Thermostable High-Modulus Fibres –V. N. Odnoralova, V. N. Kiya-Oglu, N. I. Goryacheva, A. V. Ivanova, V. I. Ognev, V. A. Platonov, and G. A. Budnitskii 319 12
Polymer-Analog Transformations of Polycaproamide—Polyglycidyl Dimethacrylate Graft Copolymers under the Effect of Aromatic Diamine – T. V. Druzhinina, K. V. Kardash, and E. M. Aldoshina 324 16
Reaction of Cellulose with Aqueous Solutions of Orthophosphoric Acid. Structural and Chemical Aspects of the Reaction of H_3PO_4 with Hydrated Cellulose Film – L. N. Mizerovskii and V. V. Afanas'eva 329 20
Effect of the Structure of Cellulose Acetate Solutions on the Morphological Characteristics of Ultrafiltration Membranes – G. P. Denisova, T. P. Ustinova, E. G. Povolotskii, S. V. Igonina, and N. Yu. Martynova 335 24

MATERIALS SCIENCE
Study of Flexural and Shear Strains in Twisting of Complex Chemical Fibres – Yu. A. Kuznetsov 338 27
Composite Viscose—Polyester Fibre Production Technology – E. V. Illarionova, V. A. Rodionov, A. G. Sychev, and A. V. Astakhov 342 29
Nikant Biologically Active Surgical Sutures – S. I. Shkurenko and T. S. Idiatulina 346 32

FIBRE COMPOSITE MATERIALS
Alternative Technology for Manufacture of Carbon Composites – N. I. Zagoruiko, Yu. A. Kadykova, L. G. Glukhova, and S. E. Artemenko 350 35
Evaluation of the Quality of Electrochemical Treatment of Carbon Fabric – A. V. Skolunov, L. K. Borisova, and M. E. Kazakov 353 38

MACHINES AND EQUIPMENT
Maximum Output of The Loading Zone of a Plasticizing Extruder – V. I. Yankov, N. M. Trufanova, and A. G. Shcherbinin 356 40

MATHEMATICAL METHODS OF INVESTIGATION
Calculation of the Absolute Breaking Load of Twisted Polypropylene Film Fibres – S. A. Ryzhov, V. A. Rodionov, and A. B. Sidorov 363 45
Use of Scaling Theory for Determining the Breaking Load of Fabrics Made from Chemical Fibres – Yu. S. Shustov 369 48
Quasistatonary Method of Describing the Kinetics of Treatment Processes for Fibre Materials – G. I. Efremov 372 50

PHYSICAL CHEMISTRY OF FIBRE-FORMING POLYMER
Thermophysical Parameters of Fibre–Forming Polymer Macromolecules. A Review – L. S. Titenkov, V. I. Vettegren', and V. B. Kulik 378 54
ERRATA 388 11

Volume 34, Number 6, November-December, 2002

CHEMISTRY AND TECHNOLOGY OF CHEMICAL FIBRES
The Role of the Entropy Factor in Chemical Fibre Technology – A. T. Serkov 389 15
The Structure of Acrylic Fibres – A. T. Kalashnik, O. N. Panichkina, A. T. Serkov, and G. A. Budnitskii 393 18
Effect of Process Parameters on the Structure and Physicomechanical Properties of Nonwoven Materials Manufactured by Aerodynamic Spinning from Polymer Solution – A. V. Smirnov and A. V. Genis 400 24
Fabrication and Study of the Degradability of Chitosan Films – G. A. Vikhoreva, N. R. Kil'deeva, M. Yu. Ustinov, and Yu. N. Nochevkina 407 29
Effect of Phosphorus-Containing Fire-Retardant Systems on Fireproofing and Processing Indexes of Polypropylene – Yu. S. Antonov, E. V. Petrova, and N. S. Zubkova 412 33

PHYSICAL CHEMISTRY OF FIBRE-FORMING POLYMERS
Study of Solutions of Heterocyclic Para-Copolyamide – V. N. Smirnova, M. M. Iovleva, V. N. Kiya-Oglu, and G. A. Budnitskii 418 38
Genesis of the Surface Structure of Armos Fibre – S. I. Banduryan, M. M. Iovleva, A. I. Zhuravleva, A. M. Shchetinin, N. N. Machalaba, and G. A. Budnitskii 422 41
Some Characteristics of Ultrasonic Welding of Polymers – V. G. Gutnik, N. V. Gorbach, and A. V. Dashkov 426 44

MATERIALS SCIENCE
Development of Methods of Manufacturing Modified Sutures Corresponding to Current Requirements in Medicine. A Review – V. P. Sergeev, E. P. Plygan', E. A. Ivashchenko, N. I. Vagin, and N. N. Baglei 433 49
Fibre Chemisorbents Based on Modified Graft Copolymers of Cellulose and Polycaproamide – L. V. Gulina, E. A. Grigoryan, G. A. Gabrielyan, and L. S. Gal'braikh 440 55

MATHEMATICAL METHODS OF INVESTIGATION
Prediction of Reverse Relaxation and Deformation—Recovery Processes in Synthetic Fibres – A. G. Makarov and A. M. Stalevich 448 62
Prediction of the Wear Resistance of Yarn Made from Chemical Fibres – Yu. S. Shustov and E. Yu. Shustov 452 64

REGENERATION AND INDUSTRIAL ECOLOGY
Fibre Chemisorbents — Material for Environmental Protection. A Review – M. P. Zverev 456 67
Structural Features of Composite Chemisorption Fibre Materials from Polycondensation Filling – M. M. Kardash, N. B. Fedorchenko, and O. V. Epancheva 466 75

INDEX
Author index, Volume 34, Number 1-6, 2002 473
Tables of Contents, Volume 34, Number 1-6, 2002 475